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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/027,042	12/21/2001	James M. Young	24347-054 US	2218

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EXAMINER	
DEBERADINIS, ROBERT L	
ART UNIT	**PAPER NUMBER**
2836	

DATE MAILED: 03/01/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/027,042	YOUNG, JAMES M.	
	Examiner	Art Unit	
	Robert DeBeradinis	2836	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 December 2001*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-11* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-11* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *21 December 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *6/30/03*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over SCHONDORF 6,581,960 in view of DARMAWASKITA 5,854,564.

Regarding claim 1.

SCHONDORF discloses a passenger safety interface circuit comprising a seatbelt latch sensor (38, column 4, lines 12-15); a control microprocessor circuit responsive to the seat belt latch sensor (38) for controlling the activation of a passenger safety system.

SCHONDORF does not disclose the sensor (38) interface between the sensor and the microprocessor (44) nor does SCHONDORF teach a current mirror circuit having first and second current paths wherein the seat latch sensor is in said second current path; a current sensing circuit in said first current path, said first current in said first current path mirroring the current in said second current path and a control microprocessor circuit responsive to the current in said first current path for controlling the activation of a passenger safety system.

DARMAWASKITA teaches a current mirroring circuit which allows a micro-controller to directly interface to sensors (abstract).

It would have been obvious to one having ordinary skill in the art at the time of this invention to include a current mirroring circuit. The motivation would be to provide an interface between the seatbelt latch sensor and the microprocessor that would allow the microprocessor to directly interface with the seatbelt latch sensor (column 1, lines 27-32)

Regarding claim 2.

SCHONDORF in view of DARMASKITA disclose the passenger safety interface circuit as set forth in claim 1.

DARMASKITA teaches wherein said current mirror circuit includes first and second matching transistors (24, 28), said first transistor included in said first current path and said second transistor included in said second current path (figure 4).

Regarding claim 3.

SCHONDORF in view of DARMASKITA disclose the passenger safety interface circuit as set forth in claim 2.

DARMASKITA teaches wherein the safety interface circuit includes a control transistor (22, figure 3) coupled between said second matching transistor and sensor (36) for controlling the current to sensor (36).

DARMASKITA does not disclose wherein the control transistor controls the current to said seatbelt latch sensor circuit in response to a signal from said control microprocessor circuit.

It would be obvious to one having ordinary skill in the art at the time of this invention to generate the Vref voltage used to control the current to sensor (36) to control the current through said seatbelt latch senor. The motivation would be to .generate the Vref with an output from the microprocessor so that the current to the seatbelt latch sensor is controlled by the microprocessor, to provide a means to calibrate the interface circuit for different sensor devices.

Regarding claim 4.

SCHONDORF in view of DARMASKITA disclose the passenger safety interface circuit as set forth in claim 3.

SCHONDORF in view of DARMASKITA do not disclose the safety interface circuit further including a first current sense resistor in said first current path between the first matching transistor and ground potential, the voltage across said resistor being proportional to current through said seatbelt latch sensor circuit and providing the input signal to the control microprocessor circuit.

DARMASKITA teaches wherein capacitor (14) is in said first current path between the first matching transistor and ground potential, the voltage across said capacitor being proportional to current through sensor circuit and providing the input to control circuit (figure 3).

The Examiner takes official notice. The nonlinear function between the charging current of a capacitor and the voltage across the capacitor is well known in the art. It is also well known that a resistor provides a linear function between the current flowing through the resistor and the voltage developed across the resistor. It is also well known

that a capacitor inherently introduces delay in the circuit and a resistor does not in itself introduce a delay.

It would have been obvious to one having ordinary skill in the art at the time of this invention to replace capacitor (14), disclose in DARMASKITA 'S interface circuit (figure 3), with a resistor. The motivation would be to provide the seat belt latch signal to the processor that changed linearly with the current, to reduce response time or delay in the safety interface circuit.

Regarding claim 5.

SCHONDORF in view of DARMASKITA disclose the passenger safety interface circuit as set forth in claim 4.

SCHONDORF in view of DARMASKITA do not disclose wherein said control microprocessor circuit includes outputs to control the operation of a vehicle airbag system and or a vehicle seatbelt tensioner system.

DARMASKITA teaches current mirror circuit interfacing with different types of sensor elements (DSL module 10, column 6, lines 60 plus).

It would have been obvious to one having ordinary skill in the art at the time of this invention to provide the safety interface circuit wherein said control microprocessor circuit includes a plurality of outputs. The motivation would be to provide direct control to a plurality of different sensors such as a vehicle airbag system sensor and or a vehicle tensioner system sensor.

Regarding claims 6, 7.

SCHONDORF in view of DARMASKITA disclose the passenger safety interface circuit as set forth in claim 5 including outputs to control different sensors.

SCHONDORF in view of DARMASKITA do not teach at least a second control transistor coupled between said second matching transistor and said second latch sensor circuit for controlling the current through said second seatbelt latch sensor circuit in response to a signal from said control microprocessor circuit.

The Examiner takes official notice. The second control transistor and the second seatbelt latch sensor interfaced with the mirror current circuit is merely duplicating the existing circuits.

It would be obvious to one having ordinary skill in the art at the time of this invention to provide a second control transistor and a second seatbelt sensor circuit for controlling the current through said second seatbelt. The motivation would be to provide a passenger safety interface circuit that would protect a second passenger.

Regarding claim 8.

SCHONDORF in view of DARMASKITA disclose the passenger safety interface circuit as set forth in claim 7 wherein the current through said first current path is detected by said control microprocessor circuit indicating that the seatbelt is latched.

SCHONDORF in view of DARMASKITA do not disclose wherein the current through said first current path is detected by said microprocessor circuit in discrete values, said discrete values indicating that neither seatbelt is latched, only said first seatbelt is latched, only a second seatbelt is latched, or that both seatbelts are latched.

The Examiner takes official notice. It is well known in the art that the current in the first path is dependent on the current flowing in the second path. It is also well known that the current changes by a given amount when sensors are placed in parallel.

It would have been obvious to one having ordinary skill in the art at the time of this invention to detect the change in current due to the number of seatbelts latched. The motivation would be to determine the number of seatbelts latched, to initiate the processor only when the processor senses all occupant seatbelts are latched (SCHONDORF, column 4, lines 10-15).

Regarding claims 9, 10, 11.

SCHONDORF in view of DARMASKITA disclose a mirror circuit with first and second current paths, controlling the current flow in said second current path by a control microprocessor circuit, monitoring the status of the seatbelt latches by providing a seatbelt latch sensor circuit, measuring the current in said first current path, said current in said first current path mirroring the current flow in said second current path, applying the measured current to the control microprocessor circuit to provide the status of the seatbelt latches to the microprocessor circuit, and providing an output path from said microprocessor circuit to a vehicle airbag system and or a vehicle seatbelt tensioner system to fire or not to fire depending on the status of the seatbelt latches in the event of a detected collision or sudden deceleration (refer to SCHONDORF, figure 5, DARMAWASKITA, figure 3 and above rejections).

Any inquiry concerning this communication should be directed to Robert L. DeBeradinis whose number is (571 272-2049). The Examiner can normally be reached Monday-Friday from 8:30 am to 5:00 pm.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Brian Sircus, can be reached on (571 272-2800 EXT 36). The Fax phone number for this Group is (703) 872-9306.

RLD

FEBRUARY 19, 2004